



1772

The Consolidated Mines Company of Lake Superior, Limited

1901
1902
1903

(NON-PERSONAL LIABILITY)

Incorporated 1901 Under the Ontario Mining Companies' Incorporation Act.

Capital, / / / \$1,000,000.

MINES:

Porcupine Mine,

Badger Mine,

Keystone Mine,

West End Silver Mountain

East End Silver Mountain.

**RESOLUTION ADOPTED BY THE DIRECTORS OF THE CONSOLIDATED MINES COMPANY OF LAKE
SUPERIOR, LIMITED, February 12th, 1902.**

RESOLVED, That the General Manager is requested to prepare a description of the several Mining Properties owned by the Company with statement of the history and present state of development of each, and that the same be printed for the information of the Stockholders.

PORT ARTHUR, ONTARIO, February 15th, 1902.

To the Board of Directors of the Consolidated Mines Company of Lake Superior, Limited.

GENTLEMEN :—

As requested by resolution of your Board, I herewith submit description of the several Mining Properties owned by the Company, with some account of the history and present condition of development of each, together with surface and underground plans and photographs of the properties and different mining plants.

I may perhaps be permitted to add, that your Company, to make these properties profitably productive, needs an increase in the milling plant. The ten stamp mill on the West End is entirely inadequate for the profitable operation of that Mine. That property, in connection with the East End would easily keep a forty stamp mill supplied with ore, and a modern up-to-date mill of that capacity ought to be erected on the property.

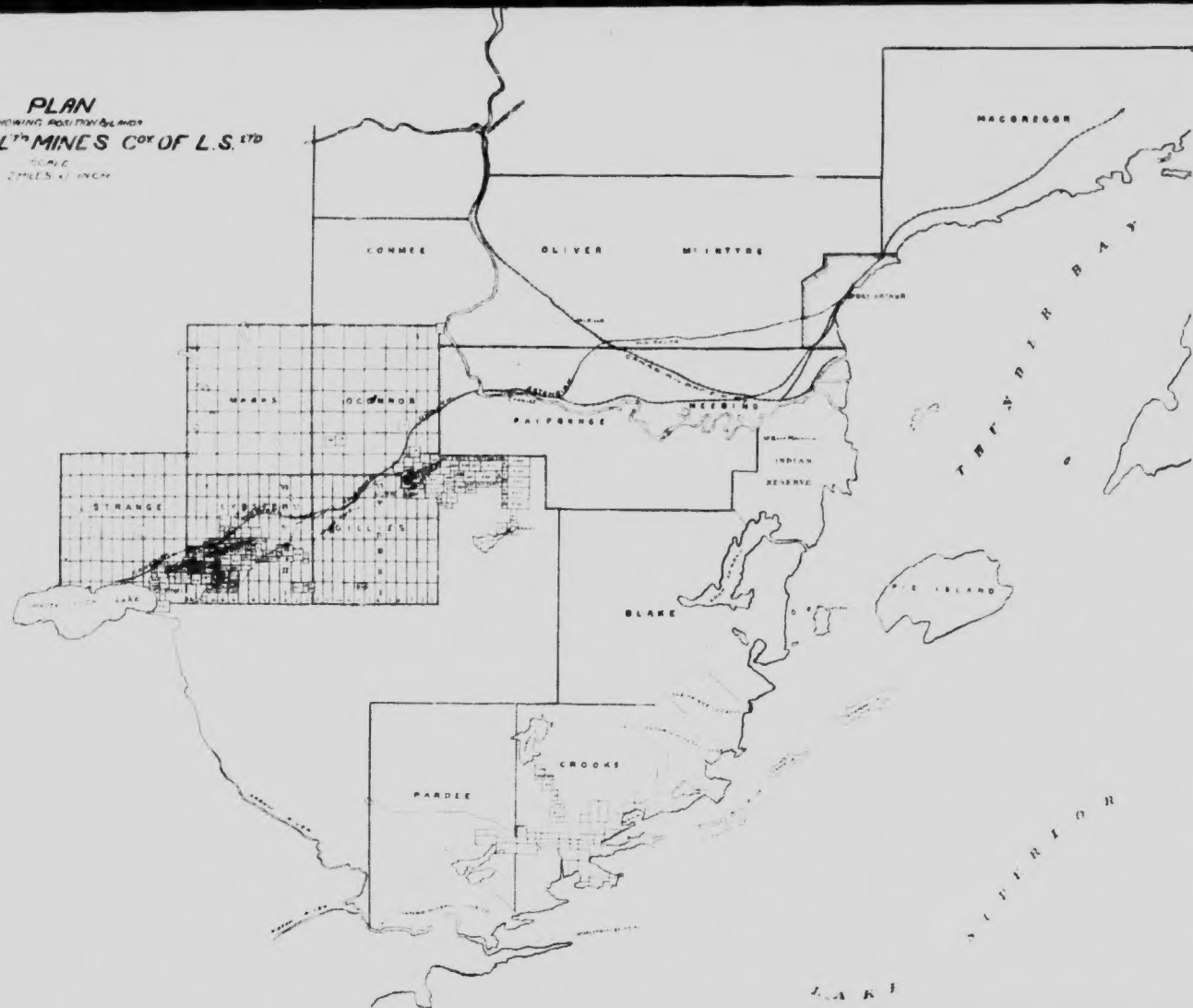
A twenty stamp mill can be installed on the Badger-Porcupine property, by utilizing present buildings, at a comparatively small expenditure. With these two mills in operation, and five developed Mines to supply them with ore, there ought to be no difficulty in earning regular and satisfactory dividends.

Respectfully submitted,

HERBERT SHEAR,

General Manager.

PLAN
 SHOWING POSITIONS AND LANDS
THE CONSOLIDATED MINES CO. OF L.S. LTD
 SCALE
 2 MILES TO INCH



DESCRIPTION OF MINES AND MINING LOCATIONS

OWNED BY

The Consolidated Mines Company of Lake Superior, Limited

These properties situated in the District of Thunder Bay, Province of Ontario, Canada, and consist of eighteen hundred and eighty-four and one-half acres (1884½) of land, the title to which is from the Crown and in fee simple absolute, and entirely free from Royalties or charge of any nature whatsoever.

96 T,	160 acres,	The Porcupine Mine.	R. 53,	160 acres,	} The East End Silver Mountain Mine.
200 T,	104 "	} The Badger Mine.	R. 54,	80 "	
201 T,	96 "		R. 60,	80 "	
145 T,	160 "	The Keystone Mine.	R. 151,	68 "	
R. 55,	80 "	} The West End Silver Mountain Mine.	W. ½ Lot 8-1,	161 ½ "	
R. 56,	80 "		Lot 9-1,	157 "	
R. 57,	80 "		Lot 10-1,	100 "	
178 T,	160 "		Lot 8-2,	149 "	

The Porcupine Mine

HISTORY



HIS property consists of Mining Location 96 T, containing 160 acres, and was worked in a spasmodic manner and with a very irregular force for about a year previous to 1887.

A good wagon road to connect with the Canadian Pacific Railway at Murillo Station and communication with Port Arthur was built, and in addition to the erection of the necessary camp buildings some drifting and test pitting work was done on a vein from 2 feet to 6 feet in width, from which there was extracted over \$15,000 in ore that for the most part consisted of massive Argentite and Native Silver, shipments of which were made to the Smelters.

On the strength of these showings the property was sold for \$50,000 cash, and the purchasers proceeded to open up the property by systematic development, blocking out the ore by drifts, shafts and winzes, and the property at the time of closing down, (on account of litigation), was very fairly well opened up to commence stoping and milling. While this development was going on some 3,000 tons or more were stoped out above the adit level and milled at the "Badger" Mill. Although no accurate figures or data were ever kept of this milling, it is believed from the information gathered, and from statements made by the Manager of the "Badger" at that time, that the ore averaged over 20 ozs. of silver per ton.

On the second level, as shown in the accompanying sketch of the workings, some very rich smelting ore was encountered in the vicinity of the main shaft.

The silver-bearing rocks of this District are those of the Lower Cambrian series known as the Animiki Slates. They consist of black argillaceous slate, and are comparatively soft and easily drilled, the

rate of drilling by hand being about four (4) feet per hour. Above these slates is a capping of hard massive Basalt or Trap rock, varying in thickness in different localities from 10 feet to 100 feet. The silver enrichment usually occurs below the junction of the Trap with the slates, and is rarely found in the Trap in any considerable quantities. The Animiki slates lie horizontally, and the veins, which are of the true fissure type, cut through both the Slates and Trap at a very steep angle or dip, usually 70 to 80°. The fissures are the result of a faulting of the rocks, and there is in nearly all cases a considerable displacement of the hanging and foot walls, the thrust varying from 10 feet to 60 feet. At the "Porcupine" the difference of level between the junction of the trap and slates on the foot wall and its corresponding point on the hanging wall is 16 feet, and the depth of the trap capping on the higher side, that is, the foot wall, is 35 feet, below the surface. The vein filling consists of a gangue of quartz, calcite and baryta, which in many places exist brecciated with portions of the slate country rock. These gangue constituents are mineralized to a greater or less extent in different portions of the same vein by iron pyrites, galena, argentiferous zinc blende, argentite (silver glance) and native silver. The Argentite exists in the vein both in the nugget and leaf form, nuggets of solid silver as large as a man's head having been taken out. Native silver in both the wire and leaf varieties is also encountered, but is not so prevalent as the black sulphide of silver (argentite). A pale green and greasy substance, locally known as mountain tallow, which is chemically described as a hydrated silicate of magnesia, is found impregnating both the vein itself and along its walls. This mountain tallow has been found to be intimately associated with rich depositions of silver, and is always looked for as a good indication of the approach to a rich chute of ore.

The dark varieties of zinc blende are found to be highly argentiferous, running in some cases as high as 3,000 ozs. in silver to the ton.

Of the Porcupine Mine in January, 1899, (after some additional development work had been carried out under my direct supervision while Manager of the "Badger Mine") I then reported as follows: "You will notice by glancing at the accompanying underground plan of the Porcupine Mine the amount of ore available for stoping as well as what has already been stoped out. Approximately there is ore enough at present blocked out to keep a 10 stamp mill running for at least two years, and sinking the present shaft two hundred to three hundred feet deeper, would open up a very large ore body of a quality that

will pay a handsome margin, over and above the expenses of milling and mining, and I confidently expect that a large amount of smelting ore will be encountered such as had already been shipped when the mine was in operation last, with values running from 300 to 3,000 ozs. to the ton."

The above observations refer only to the Porcupine Mine proper. About 300 feet east of the Porcupine but upon the same location and parallel thereto, lies the Porcupine Junior, an exceedingly large and well defined vein on which development work was done shortly before the mine closed down. A tunnel was run into the side of the mountain for some distance through the drift and alluvial overflow, striking solid rock formation and what was supposed to be the vein, the outcropping of which shows on top of the hill. This tunnel was driven for a total distance of 695 feet, 539 feet of which was on the vein and where it showed an average width of two feet, and was in places very rich in silver.

Some stoping was also done above this level, and it is estimated approximately that about \$20,000 in silver was taken from these workings. Subsequently it was determined, apparently, that this work was altogether on a "feeder" to the vein, which was intersected at about 40 feet in, where it showed from 3½ to 4 feet of solid and well mineralized vein carrying considerable native silver. No further work was done on this vein, but its characteristics are such as to warrant the belief that a very large body of rich ore will be found at or near the junction of the "feeder" with the main vein. This vein is a mine in itself, the possibilities of which are as great as that of the Porcupine proper, and I have no hesitation in stating that it is possible, under intelligent direction, to place this property upon a paying basis with a comparatively small expenditure of money for necessary machinery and labor, and I am equally confident that upon further surface explorations upon this hitherto but partially prospected area, other argentiferous veins of equal merit will be discovered.

The present Company took possession in July, 1901. The mine was pumped out, and after a very small amount of exploration work was done, shipping ore of the very highest grade was found to exist in several places. In one place in particular there exists 6 inches of ore that is as nearly solid silver as it is possible to be. From one place a small piece of ground was stoped out, and a test shipment of 13 tons made to the smelter at Omaha. The ore was roughly sorted into two grades, the higher grade running 396.72 ozs. and the lower 60.20 ozs. of silver to the ton. The development work since July has consisted of

the extension of the second level, both east and west, in driving which some very rich ore has been encountered, one chute in particular was struck November 4th carrying a 12 inch pay streak of ore assaying 8,866 ozs. to the ton. This development has increased the amount of ore blocked out by some 3,000 tons. It is proposed to sink the main shaft 30 feet deeper and to open up another level immediately, as rich ore exists in the bottom of the shaft, which is at present 40 feet below No. 2 Level. The total amount of development on the main Porcupine consists of 1,690 feet of drifting and 250 feet of shafting.

PLANT

When the Company took over the property in July, no plant existed on the property. Since then an excellent hoisting plant, capable of handling 200 tons or more per diem has been installed, with engine house, shaft house and ore houses, all constructed of good design and workmanship. The engine house, landing stage in the shaft house, and the underground workings are lighted by electricity, the electric plant having a capacity of 50 lights.

There are also on hand some 300 cords of wood. The steam capacity, being 80 horse power, is sufficient to supply power for a 10 stamp mill in excess of what is now being used for the hoisting plant. The mine being a particularly dry one, no trouble is experienced with water, although a duplex pump of 170 gallons per minute capacity is installed, and would be capable of handling the water even when the workings are largely increased.

A number of the houses which stand on the Badger property were repaired so that ample housing capacity is available even for a much larger force of men, and a small outlay will further increase this to a capacity of 150 men if required. There are in all some 40 buildings, including houses, stores, stables, sleeping and cook camps and offices on the Badger and Porcupine properties.

The engine house and blacksmith shop is thoroughly equipped with all the necessary tools to handle what work is met with in the ordinary course of events. For heavier work a machine shop and foundry at Port Arthur are easily available and prompt service is rendered.

The transportation problem, which in the early history of the mine was a very serious and expensive

one, necessitated a haul by team, a distance of 12 miles over bad and hilly roads, of supplies coming in and ore going out. This is now a very simple matter, as a good wagon road of one and a half miles connects the mine with Silver Creek Station on the line of the Canadian Northern Railway, Duluth extension, from which point trains run into Port Arthur, a distance of 28 miles.

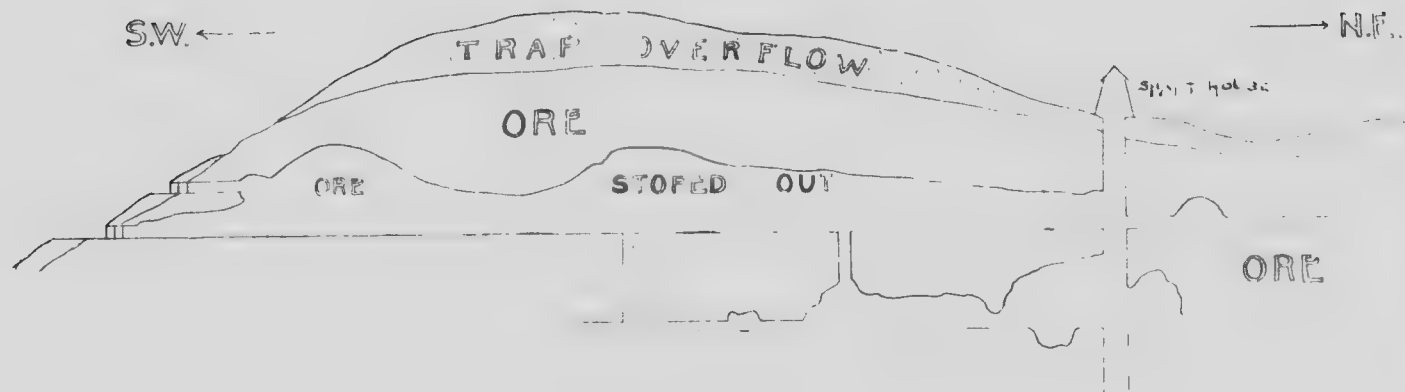
EXPENSES OF OPERATION

As to this important matter conditions here are exceedingly favorable to the miner. The rock, unlike the usual rock met with in gold and silver mines, is comparatively soft, and work can be accomplished as quickly here by hand drilling as in some other localities by machine drilling. Transportation expenses are reduced to a minimum, being only \$2 to \$7 per ton. Mining labor is paid \$2 per shift of ten hours; no labor union or labor troubles exist. Fuel costs from 90c. to \$1.10 per cord, delivered at point of usage. Drifting contracts can be made for \$5.00 to \$6 a foot; sinking, \$8 to \$12. Dynamite costs 15c. per lb. The mines being in a farming community, cheap farm produce is therefore available. In view of all these favorable facts the total mining and milling costs, with proper management, ought not to be in excess of \$2 per ton, with a milling capacity of 50 tons a day, and as the ore is expected to run between \$8.50 and \$11.50 per ton, the margin for profit is ample.

THE PORCUPINE MINE

THE UNDERGROUND WORKINGS

SCALE - 50 FT = 1 INCH





PORCUPINE MINE SHAFT AND ENGINE HOUSE



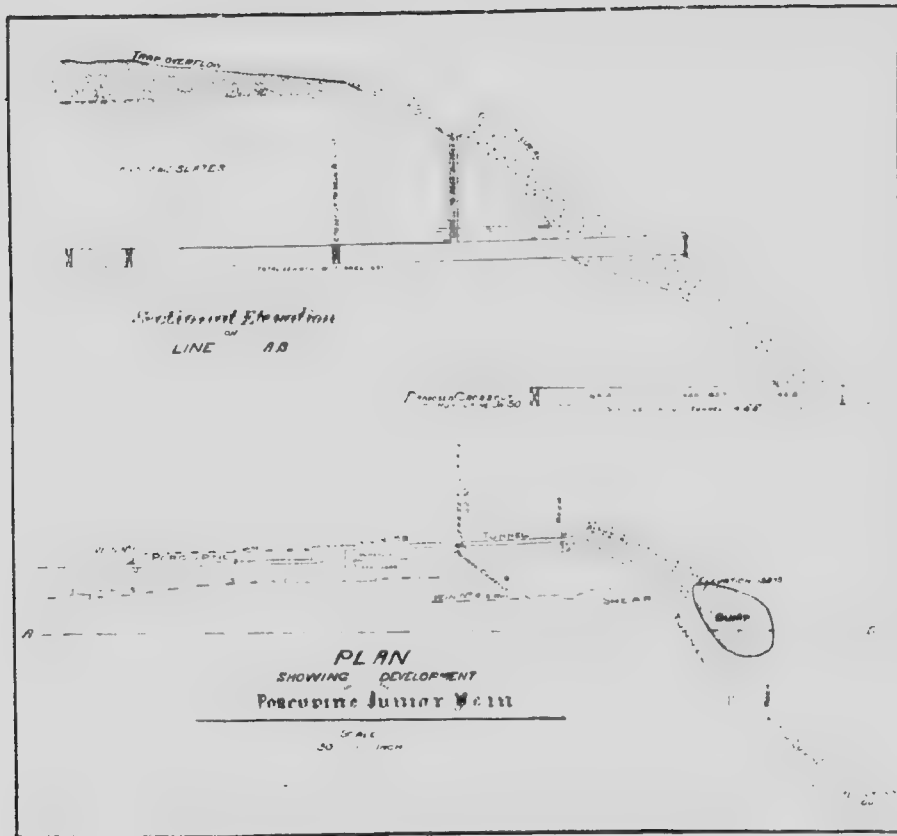
BADGER STAMP MILL

Porcupine Junior

On this vein a development tunnel was driven some 695 feet, from which some very rich silver ore was taken out as a result of the work, amounting to \$20,000. Three years ago when the Porcupine passed into the hands of the owners previous to the present Consolidated Company, they figured that by driving a cross-cut tunnel at a lower level than the Porcupine Junior tunnel they could intersect this vein and thereby open up a large amount of shipping ore, which would be available without the expense of any plant whatever. They therefore drove the tunnel shown on the map some 419 feet, with the result that, not having had any accurate surveys made, when they struck a small stringer of only a few inches wide at the point marked "O," they supposed they had reached the vein they were seeking; they then drifted on it for 137 feet, and not finding anything of value abandoned it. A survey of this tunnel and the Porcupine Junior tunnel shows the two workings to be in the portions as indicated on the plan, and by cross-cutting at the point marked "Proposed Cross-cut," the Porcupine Junior vein will be struck, allowing for the dip of the vein, in about 40 feet.

By cross-cutting from the main shaft of the main Porcupine, a distance of about 200 feet, the Porcupine Junior could be brought into connection with the present hoisting plant, and the ore taken to the mill that way.

Between these two veins there ought not to be the slightest difficulty in keeping a 20-stamp mill, with a capacity of 80 tons per diem, pounding steadily for several years. It is also very probable that a small outlay on diamond drilling would pick up other rich veins, as other faults in which all these veins occur are known to exist, but have never been exploited.



The Badger Mine

The Badger Mine, consisting of Mining Locations 201 T and part of 200 T, contains 200 acres, and joins the Porcupine and Keystone above described. From the Fall of 1887 until the close of that year, in addition to the erection of camp buildings, about one hundred feet of drifting was done, during which initial work, an unusually rich body of silver was encountered. Up to the end of March, 1889, the work consisted chiefly of sinking a shaft 280 feet; over 2,000 feet of drifting and 100 feet of winzes and air shafts were also carried out, besides some stoping between the first and second levels, where extremely rich ore was struck, some of which assayed over 19,000 ounces of silver to the ton. Up to April 1st, 1889, about \$65,000 had been expended, and \$267,000 worth of silver taken from the mine. An average of thirty men were employed, and the surface buildings, shaft house, shops, stables, officers' quarters, rock house, and a complete stamp mill with a daily capacity of thirty tons were completed.

The Mine is situated well within the centre of what has been termed the "Silver Constellation," and the general character and strike of the veins correspond very closely with the Porcupine veins.

The Keystone

The Keystone was until the construction of the new colonization road and spur thereto, via Badger and Porcupine, not quite so accessible as its immediate neighbors, and preliminary and other work of development carried on there was done in a quiet way. The Keystone has an area of 160 acres of splendidly wooded land, and has three veins upon it, known as Nos. 1, 2 and 3, upon which the development work up to date consists of drifting 325 feet in first level on No. 1, and about 330 feet of sinking and drifting on No. 2. Vein No. 1 is a most pronounced one, and its ores are rich in native silver. Veins 2 and 3 have produced some of the richest native silver that was as remarkable for its variety and beauty as anything yet brought to light in this or any other known district. It is estimated that about 20,000 ounces of silver in the smelting ore were extracted from the different workings, while at least 950 to 1,000 tons of milling ore remain upon the dumps, all of which shows rich in silver.



Showing Stamp Mill and Tramway

THE BADGER MINE

Silver Mountain West

Silver Mountain West, or "West End Mine," consists of Mining Locations R. 55, R. 56, R. 57 and 178 F. The mine is equipped with a modern ten stamp Fraser & Chalmers Gravity Mill, with a capacity of forty tons per day, one Copeland and Bacon double cylinder hoist, 8 x 10, and locomotive type forty horse power boiler; one single drum, 8 x 10 hoist, one vertical boiler, thirty horse power; pumps of the capacity of 250 gallons per minute; fully equipped blacksmith shop, all necessary tools, etc.; fine office building, large boarding house, sleeping camp, also twenty dwellings, one store building, stocked with merchandise and supplies for the men, stables, two teams of horses, with the necessary harness, sleighs, wagons, etc., etc.

An exceedingly strong vein cuts nearly squarely through the ridge or summit of Silver Mountain in its almost east and west course, dipping towards the north. This vein is the direct extension of the well known "East End" of Silver Mountain, to which the original Indian discoverer of this long hidden treasure gave the appropriate title of "Shunia Weachu," or "Mountain of Silver," and is referred to in the special Geological reports of the Geological Survey of Canada, as "a very strong and persistent fissure, showing at frequent intervals right across the mountain for over a mile." Along this outcrop (now embraced in the East and West subdivisions) and for some distance below, the vein is large and solid and from eight to ten feet wide, while in the argillites lower down its width is more persistent, averaging sometimes from thirty to forty feet in width. The gangue consists mostly of calcite, with some baryta and a little colorless quartz and greenish fluorite.

The "West End," during its early bonding period, produced magnificent results in ore, even under the very worst conditions as regards transportation and accessibility, but it was not until 1888 that anything like even partially opening up a portion of the claim was seriously contemplated. During that year work was resumed on the property, camps erected, pumps and hoists installed and development work carried on to a greater or less extent. In April of the following year several hundred feet of drifting and sinking had been done, and two shafts had been sunk at intervals of 500 to 600 odd feet apart. The main shaft had rich ore continuously from the surface. No. 2 shaft had also rich ore from near the surface, and the first adit level had a rich ore body that assayed as high as 3,000 to 18,000 ounces in silver to the ton.

The Canadian Northern Railway (Duluth Branch) now runs directly through the Silver region, and a very cheap rate of freight obtained for merchandise and supplies to the different mines, while ore and concentrates are very cheaply transported to the smelters.

In a word, the "West End" of Silver Mountain has produced approximately in the short time that it has been operated 350,000 ounces of silver, and when opened up to connect with the upper and lower adit levels of the "East End Mine," will but commence the brightest and most interesting page in the history of silver mining in this district.



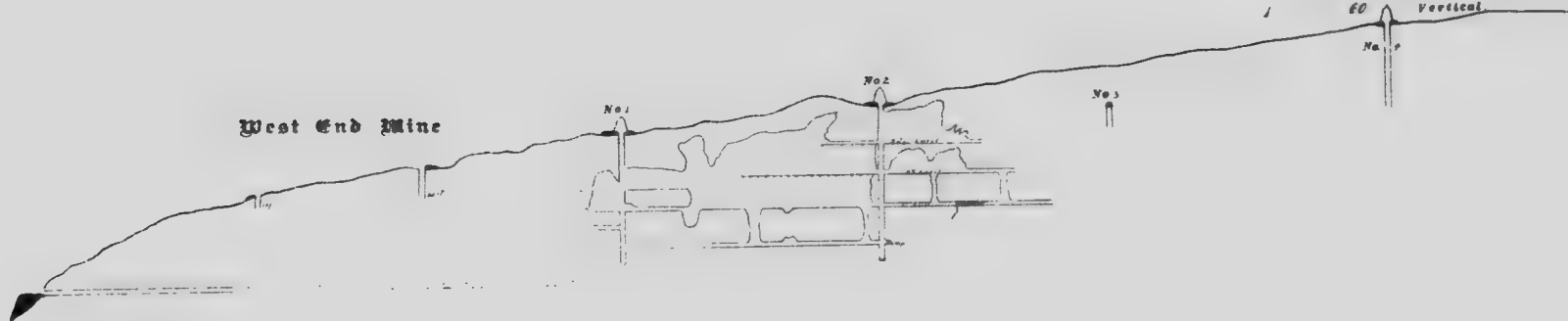
WEST END MINE

East End Mine



SILVER MOUNTAIN MINES
LONGITUDINAL CROSS SECTION

Scale:
1 inch = 20 Feet Horizontal.
1 inch = 60 Feet Vertical.



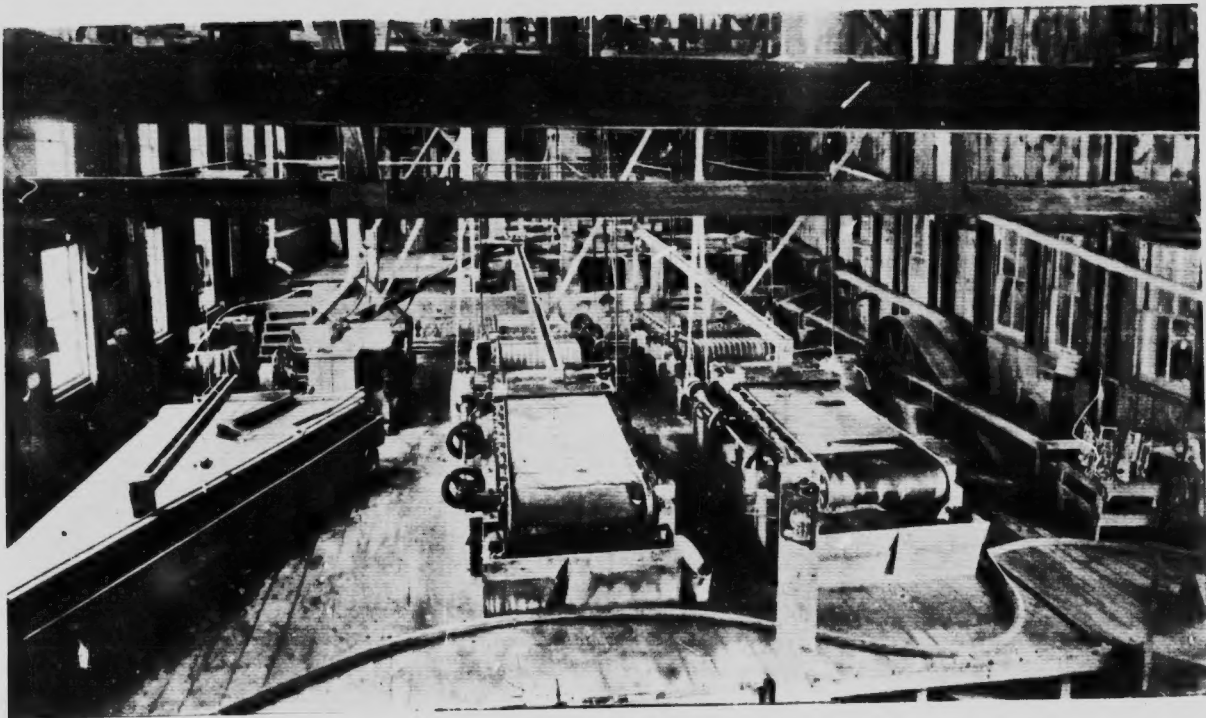
MINES SECTION







STAMP MILL AT WEST END MINE



INTERIOR STAMP MILL



UNDERGROUND, WEST END MINE

The East End Mine

The East End Silver Mountain Mine is composed of Mining Location R. 53, one hundred and sixty acres, R. 54, eighty acres, R. 60, eighty acres, R. 151, sixty-eight acres, the North half of Lot 8, Concession 1, one hundred and sixty-one and a half acres ($161\frac{1}{2}$) acres, North half of Lot 9, Concession 1, one hundred and fifty-seven acres, North half of Lot 10, Concession 1, one hundred and nine acres, Lot 8, Concession 2, one hundred and forty-nine acres, in all $964\frac{1}{2}$ acres, all in the Township of Lybster, in the District of Thunder Bay and Province of Ontario, Canada.

The main vein on these properties is a continuation of that of the West End Silver Mountain, and development consists of a series of shafts, Nos. 1, 2, 3 and 4, upon which considerable work has been done. No. 4 shaft is 237 feet in depth, and is situated about 130 feet from the Eastern Boundary of the West End Mine property. About five hundred feet of drifting in two levels has been done from this shaft. Other development consists of an adit level about 1,800 feet in length connecting Shafts Nos. 1 and 2, about 500 feet of intermediate levels and shafts have also been driven on the vein, and it is estimated from these workings, that at least 9,000 tons of milling ore are now on the dump, ready for treatment, and there is now developed and available for stoping several thousand tons of ore of sufficient value to warrant a large increase in the present milling capacity, and it would seem wise for the Company to install an additional plant at an early date.

In the centre of the property and at the highest altitude are two lakes, which will furnish an inexhaustible supply of water for all purposes. All the lands owned by the Company are well wooded as is the country adjoining, and this assures an ample supply of timber at a very reasonable cost for all mining and fuel purposes.



EAST END MINE